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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,738	07/28/2003	Naga A. Ayachitula	SVL920030044US1	4034

7590 04/04/2007  
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EXAMINER
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ROSE, HELENE ROBERTA

ART UNIT	PAPER NUMBER
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2163

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/04/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/628,738	<b>Applicant(s)</b> AYACHITULA ET AL.	
	<b>Examiner</b> Helene Rose	<b>Art Unit</b> 2163	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 January 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 and 15-42 is/are pending in the application.
- 4a) Of the above claim(s) 10-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 15-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **Detailed Action**

#### **Continued Examination Under 37 CFR 1.114**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.

#### **Applicant's submission filed on 1/26/2007 has been entered**

2. Claims 1, 15, and 24 were amended. Claims 10-14 have been cancelled. Claims 33-42 have been added. Therefore, Claims 1-9 and 15-42 are presently pending.
3. Claims 1-9 and 15-42 have been rejected.

#### **Claim Rejections - 35 USC § 102**

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 6, 8-9, 15, 18-19, 24, 29, 31-32, 34-36, 38-39, 40, and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Lichtman et al (US Patent No. 5,793,979, Date of Patent: August 11, 1998, hereinafter Lichtman).

Claims 1, 24, 36 and 40:

**Regarding Claims 1, 24, 36 and 40**, Lichtman discloses a method and an **article** of manufacture comprising a program storage medium readable by a computer and embodying one or more instructions of a resource allocation module executable by the computer to perform a method of releasing resources of a user session operating in a software environment that includes an automatic memory management algorithm **executed by a garbage collector**, the method comprising:

**using the resource deallocation module**, detecting an impending execution of the automatic memory management algorithm (column 43, lines 11-14, in response to a “deallocate” instruction by the configuration manager, the assignment element deletes the resource assignments in the assigned resource table for the designated device, which is equivalent to “using the resource deallocation module detecting an impending execution of the automatic memory management algorithm”, Lichtman);

responsive to the detecting, accessing, **by the resource deallocation module**, an object of the user session (column 40, lines 36-40, wherein the configuration manager instructs the arbitrators to free the resource elements assigned to the removed device, wherein the resource elements previously assigned for use by the removed device become available for use by other devices of the computer as required by future configuration operations, wherein this is interpreted to be equivalent to “responsive to the detecting, accessing, **by the resource deallocation module**, an object of the user session”, Lichtman);

identifying, **by the resource deallocation module**, one or more external resource references of said object (column 40, lines 40-43, wherein the configuration

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manager uploads the device driver corresponding to the removed device, which is interpreted to be deallocating allocated external resource of each object of a user session and wherein it locates data objects that no longer can be used, which corresponds to the "removed device", and this device driver becomes available for use by other compatible devices, wherein overall this is interpreted to be equivalent to "identifying, by the resource deallocation module, one or more external resource references of said object" Lichtman);

**using the resource deallocation module**, releasing said one or more external resource references by a set of rules for said object (column 43, lines 16-19, wherein a representative instruction for the memory arbitrator is the command FREE (start=2000 h, end =2200 h), which clears the assignment for the allocated memory extending between 2000h and 2200 h, which is interpreted to be equivalent to "using the resource deallocation module, releasing said one or more external resource references by a set of rules for said object", Lichtman); and

repeating the accessing, identifying, and releasing, **by the resource deallocation module**, for each object of the user session (column 21, lines 29-41, wherein upon completing collection of device information from the detected device, an inquiry is conducted to determine whether device information has been obtained from all of the devices connected to the interface bus and if the answer is negative, the "NO" the process continues to the collection of device information from those remaining devices and in contrast, the "YES" branch is followed to enable the sequence of identifying device drivers, arbitrating and allocating the resources 14, and loading the identified device drivers for the detected devices 20 of the interface bus 17' and this

process will be repeated until all of the system busses 18 within the computer 8 are detected, wherein this is interpreted to be equivalent to “repeating the accessing, identifying, and releasing, by the resource deallocation module, for each object of the user session”, Lichtman).

Claims 15 and 39:

Regarding Claims 15 and 39, Lichtman discloses a system comprising:  
a software program configured to initiate, process, and terminate user sessions (column 3, lines 26-29, wherein the present invention provides a system for configuring the hardware and software components of a computer system by optimally allocating system resources for use by computer devices; column 11, lines 61-64, wherein comprises a set of computer programs that control the internal functions of the computer systems thereby allowing the computer to run application software; column 16, lines 23-26, wherein in response to this allocation of the resources, the device driver for each of the devices is loaded and the devices are subsequently activated for operation with the computer, thereby terminating this configuration; columns 28-29, lines 66-67 and lines 1-8, column 29, lines 22-29, wherein the software archive contains information related to location and identify of various programs files, including device drivers, wherein the hardware archive can contain hardware related information including the identity of detected devices and column 35, lines 44-50, wherein the event detect element responds to commands contained in certain instruction signals from the configuration manager a and these commands typically instruct the event detect element to conduct specified query-type operations, including deletion of device information stored within a particular device node and to start or to terminate

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designated tasks, wherein overall this cited information corresponds to and is equivalent to “a software program configured to initiate, process, and terminate user sessions”, Lichtman);

an object graph defining an interrelationship between objects of said user session (column 15, lines 54-64, respectively and column 40, lines 44-67, wherein the enumerator detects the connection of a new device to its assigned system bus and the detection of this event is reported to the configuration manager and, in response, the configuration manager instructs the reporting enumerator to enumerate the devices on this affected system bus and wherein this enumerator responds to the enumerate instruction by collecting device information from each of the devices on the affected system bus and for the newly installed device, a device node corresponding to this device is added to the hardware tree and wherein if the new device represents a component which has not been previously installed with the computer 8, this new device information is stored in the registry and upon completion of the enumeration task, appropriate device drivers are identified for use with the detected devices and the elements for the resources are subsequently allocated and the identified device drivers are loaded, wherein the above-described process enables the installation of a new device within the computer without substantial intervention by the user, which is interpreted to be equivalent to “an object graph defining an interrelationship between objects of said user session”, Lichtman);

a resource deallocation module linked to the software program to deallocate allocated external resources of each object of a user session responsive to an impending termination of said user session (REFER to claims 1, 24, and 30, wherein this limitation

is substantially the same/or similar and therefore rejected under the same grounds, Lichtman); and

an automatic memory management **garbage collector** module invoked subsequent to the deallocation performed by the resource deallocation module (REFER to claims 1, 24, and 30, wherein this limitation is substantially the same/or similar and therefore rejected under the same grounds, Lichtman).

Claims 6 and 29:

Regarding claims 6, Lichtman teaches wherein the accessing, identifying, releasing, and repeating is performed prior to the execution of the automatic memory management algorithm (REFER to claims 1, 24, 36, and 40 wherein this limitation is substantially the same/or similar and therefore rejected on the same grounds, Lichtman).

Claims 8 and 31:

Regarding claims 8 and 31, Lichtman teaches wherein the identifying includes identifying an allocated resource (column 16, lines 16-19, wherein the resources which are used by the devices during computing operation are allocated based upon the device information, Lichtman); and the releasing includes deallocating the allocated resource (column 43, lines 11-14, Lichtman).

Claims 9 and 32:

Regarding claims 9 and 32, Lichtman teaches wherein the accessing of an object of the user session includes obtaining an object identifier corresponding to said object from **the** object graph (column 5, lines 2-12, wherein a computer database maintained by the computer or from the user via disk containing the device driver, and the device



driver is obtained by accessing a select program file stored on either a fixed disk or another type of mass memory storage device and wherein the computer database can contain device information associated with a particular device and so forth, Lichtman); and retrieving said object using the object identifier (column 8, lines 21-26, wherein the logical configuration data can be retrieved from the particular device by reading the logical configuration data from the memory storage device for that device and the logical configuration data is thereafter stored within the computer memory and is associated with the device identification code for the particular device, Lichtman).

Claim 18:

Regarding claim 18, Lichtman teaches wherein the resource deallocation module is linked to the software program by registration of the deallocation listener method with said user session (column 8, lines 11-20, respectively, Lichtman).

Claim 19:

Regarding claim 19, Lichtman teaches wherein the resource deallocation module is linked to the software program by an assignment of an attribute of said user session to the deallocation listener method (column 8, lines 50-53, wherein the arbitrator also includes an assignment element for assigning the particular resource element for use by the selected device in response to determining that the particular resource element is available for use by the selected device, Lichtman).

Claims 34, 38, and 42:

Regarding Claims 34, 38, and 42, Lichtman teaches wherein said releasing includes releasing said one or more external resource references by a set of rules for said object, including rules based on said object type (REFER to claims 1, 24, 36 and 40,

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wherein this limitation is substantially the same/or similar and therefore rejected under the same grounds, Lichtman).

Claim 35:

Regarding Claim 35, Litchman teaches wherein said one or more external resource references are associated with at least one of file handles, database connections, sockets, and threads (column 7, lines 3-6, wherein a device installation or removal can be detected by intercepting a particular interrupt signal or by periodically polling all of the available sockets of the bus to determine the installed devices, Litchman).

**Claim Rejections 35 U.S.C – 103**

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2-5, 7, 16-17, 20-23, 25-28, 30, 33, 37, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over anticipated by Lichtman et al (US Patent No. 5,793,979, Date of Patent: August 11, 1998, hereinafter, Lichtman) in view of Waldo et al (US Patent No. 6,016,500, Date of Patent: January 18, 2000, hereinafter Waldo).

Claims 2 and 25:

Regarding claims 2 and 25, Lichtman discloses the above limitations. However, Lichtman does not disclose wherein performing the accessing, identifying, releasing, and repeating as a Listener method belonging to a Java MyListener class in a Java environment; and registering the Listener method with the user session.

On the other hand, Waldo does disclose wherein performing the accessing, identifying, releasing, and repeating as a Listener method belonging to a Java MyListener class in a Java environment (column 6, lines 5-7, wherein the method invocation, i.e. MI, may consist of a number of software modules preferably written in the JAVA programming language, and its inherent and known that JAVA provides its own classes, wherein everything is an object and all code is written inside a class and column 15, lines 12-62, wherein “an object is an instance of a class .....”, and so forth, in

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which a basic class in Java programming language is shown and wherein a Listener Method is interpreted to process specific classes of events, with individual listener objects being assigned to specific UI objects; and Figures 10 and 11, which illustrates wherein a user is notified that a session is about to expire, and refer to columns 17 and 18, wherein these figures are discussed and interpreted to correspond to “the session Listener instance is notified and operates to gracefully release resources held by the user session objects of the about to expire user session” as defined within applicant’s specification on page 9, lines 10-12, Waldo); and registering the Listener method with the user session (column 16, lines 52-59, respectively, Waldo).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to incorporate Waldo teachings into Lichtman system. A skilled artisan would have been motivated to combine as suggest by Waldo [column 6, lines 5-7], establishing and implementing an improved method for “freeing” memory and preventing memory leaks.

Claims 3 and 26:

Regarding claims 3 and 26, the combination of Lichtman in view of Waldo teaches wherein the registering includes setting a session attribute to correspond to an instance of the Listener method (page 16, lines 53-59, wherein the types of access include read access, and write access, allocation access, re-allocation access and sub-block access, wherein the privilege fields indicates the privilege level of the user or the client to form a valid request the client request much contain both the requested storage location and the desired lease period, which is interpreted to be equivalent to “registering includes setting a session attribute to correspond to an instance of the

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Listener method “,Waldo).

Claims 4 and 27:

Regarding claims 4 and 27, the combination of Lichtman in view of Waldo teaches wherein the detecting includes notifying the registered Listener method of the impending expiration of the user session (page 17, lines 13-14, wherein if the client has not completed its use of the file, the client determines if the lease is about to expire, Waldo).

Claims 5 and 28:

Regarding claims 5 and 28, the combination of Lichtman in view of Waldo teaches wherein the detecting includes detecting an impending expiration of the user session (Figure 10, diagrams 10008, wherein if the client has not completed its use of the file, the client determines if the lease is about to expire and wherein its further defined in column 17, lines 14-20, wherein the client performs a step of invoking the getDuration method and determining whether the remaining time is within a predetermined threshold, and if the lease is not about to expire processing continues and if the lease is about to expire the client sends a renew request to the server and so forth, Waldo).

Claims 7 and 30:

Regarding claims 7 and 30, the combination of Lichtman in view of Waldo teaches wherein the identifying includes identifying a file resource (Figure 10, diagram 10005 and column 17, lines 6-7, Waldo); and the releasing includes closing said file resource (Figure 10, diagram 10006, wherein done with file is defined, in which the yes,

is interpreted to be closing the file, Waldo).

Claim 16:

Regarding claim 16, the combination of Lichtman in view of Waldo teaches a Java virtual machine implementing the software program (column 6, lines 5-7, wherein the MI component may consist of a number of software modules preferably written in Java™ programming language, Waldo),

the resource deallocation module (REFER to claims 1, 24, 36, and 40, wherein this limitation has already been addressed, Lichtman), and the automatic memory management module (REFER to claims 1, 24, 36, and 40, wherein this limitation has already been addressed, Lichtman).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to incorporate Lichtman teachings for detecting objects that are no longer used to free up space within memory to improve a system performance.

Claim 17:

Regarding claim 17, the combination of Lichtman in view of Waldo teaches wherein the resource deallocation module includes a deallocation listener method adapted to deallocate the allocated external resources of each object of said user session responsive to a notification of the impending termination of said user session (column 3, lines 61-67, wherein such failures can take the form of computer or application failure or network failure that prevent delivery of messages notifying the garbage collection system that a resource is no longer being referenced and column 18, lines 11-31, wherein the server determines whether it has received a renew request from the client, if the renew request has been received, the server renews the lease, and if, however, a renew

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has not been received, the server determines if a cancel request has been received by the client invoking the cancel method, and if the client invoked the cancel method, the server cancels the lease by deleting the object stored in step 11010 from the Java space, and if this is the last outstanding lease on the file, the server deletes the file, and if a cancel request was not received, the server determines if the lease has expired and if the lease has not expired, processing continues, wherein however, if the lease has expired, the server knows that a failure has occurred and therefore invokes the recover method on the object in the Java space for the client with the lease that terminated, Waldo).

Claim 20:

Regarding claim 20, the combination of Lichtman in view of Waldo teaches **wherein** the resource deallocation module being adapted to access the object graph to identify the objects of the user session (column 11, lines 47-54, wherein the application call processor uses the grant period to update recorded grant period and to determine when the resource corresponding to the reference of its dirty call may be reclaimed, wherein the server call processor 1131 also monitors the reference counts and grant periods corresponding to references for resources that it manages, Waldo).

Claim 21:

Regarding claim 21, the combination of Lichtman in view of Waldo teaches wherein the automatic memory management module is invoked by the software program to process a plurality of user sessions including said user session (column 16, lines 2-15, wherein data processing system is defined along with its parts and wherein the client request access to one or more of the files by requesting a lease from the server,

Waldo).

Claim 22:

Regarding claim 22, the combination of Lichtman in view of Waldo teaches wherein the automatic memory management module is invoked by an operating system to process software including said software program that operate under said operating system (Figure 8, all feature, wherein it illustrates a client platform and a sever platform and column 3, lines 1-7, wherein distributed garbage collection describes a facility provided by a language or runtime system for distributed systems that automatically manages resources used by an application or group of application running on different computers in a network, Waldo).

Claim 23:

Regarding claim 23, the combination of Lichtman in view of Waldo teaches wherein the resource deallocation module is integrated with the automatic memory management module as a single unitary memory management unit that executes prior to the termination of said user session (page 17, lines 35-49, Waldo).

Claims 33, 37, and 41:

Regarding Claims 33, 37, and 41, the combination of Lichtman in view of Waldo teaches identifying said object of the user session; and, determining an object type of said object (column 15, lines 9-25, respectively, Waldo).

**Prior Art of Record**

1. Waldo et al (US Patent No. 6,016, 500)
2. Lichtman et al (US Patent No. 5,793,979)



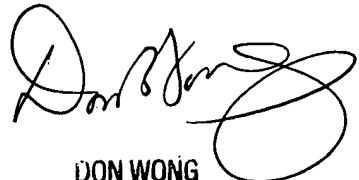
### **Point of Contact**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helene Rose whose telephone number is (571) 272-0749. The examiner can normally be reached on 8:00am - 4:30pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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March 29, 2007

  
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